

What is Claimed is:

1. An isolated human antibody or antigen-binding portion thereof that was expressed in a non-human animal and specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02).
2. The isolated human antibody or antigen-binding portion thereof according to claim 1, wherein said human antibody is a monoclonal antibody.
3. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein the antibody or portion thereof is opsonic for *Pseudomonas aeruginosa* cells.
4. The isolated human antibody or antigen-binding portion thereof according to claim 3 wherein said antibody or portion thereof facilitates phagocytosis of said *Pseudomonas aeruginosa* cells.
5. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein the antibody or portion thereof enhances the immune response to *Pseudomonas aeruginosa*.
6. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein the antibody or portion thereof facilitates the killing of *Pseudomonas aeruginosa* cells.
7. The isolated human antibody or antigen-binding portion thereof according to claim 6, wherein said facilitating the killing of *Pseudomonas aeruginosa* cells comprises delivery of an agent lethal to said *Pseudomonas aeruginosa* cells.

8. The isolated human antibody or antigen-binding portion thereof according to claim 6, wherein said facilitating the killing of *Pseudomonas aeruginosa* cells comprises enhancing the immune response to *Pseudomonas aeruginosa*.
9. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody or antigen-binding portion thereof inhibits *Pseudomonas aeruginosa* infection.
10. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody or antigen-binding portion thereof binds to *Pseudomonas aeruginosa* LPS with a  $K_d$  of  $5 \times 10^{-7}$  M to  $1 \times 10^{-7}$  M.
11. The isolated human antibody or antigen-binding portion thereof according to claim 10, wherein said antibody or antigen-binding portion thereof binds to *Pseudomonas aeruginosa* LPS with a  $K_d$  of  $1 \times 10^{-7}$  to  $5 \times 10^{-8}$  M.
12. The isolated human antibody or antigen-binding portion thereof according to claim 10, wherein said antibody or antigen-binding portion thereof binds to *Pseudomonas aeruginosa* LPS with a  $K_d$  of  $5 \times 10^{-8}$  M to  $1 \times 10^{-8}$  M.
13. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody or antigen-binding portion thereof has a half-life *in vivo* of between one hour and thirty days.
14. The isolated human antibody or antigen-binding portion thereof according to claim 13, wherein said antibody or antigen-binding portion thereof has a half-life *in vivo* of between sixteen and thirty days.
15. The isolated human antibody or antigen-binding portion thereof according to claim 13, wherein said antibody or antigen-binding portion thereof has a half-life *in vivo* of between one hour and fifteen days.

16. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody is or is derived from an immunoglobulin molecule having a heavy chain isotype chosen from the list consisting of immunoglobulin G (IgG), IgM, IgE, IgA and IgD.

17. The isolated human antibody according to claim 16, wherein said IgG is a subtype selected from the list consisting of IgG1, IgG2, IgG3 and IgG4.

18. The isolated human antibody according to claim 17, wherein said IgG is the IgG2 subtype.

19. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody or portion thereof is labeled.

20. The isolated human antibody or antigen-binding portion thereof according to claim 19, wherein said label is selected from the list consisting of a radiolabel, an enzyme label, a fluorescent label, a toxin, a magnetic agent, a second antibody, an affinity label, an epitope tag, an antibiotic, a complement protein and a cytokine.

21. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, comprising a kappa light chain and framework sequences thereof.

22. The isolated human antibody or antigen-binding portion thereof according to claim 21, wherein said framework sequences of said kappa light chain are encoded by a human gene selected from the group consisting of: V $\kappa$ 2/A19/A3; V $\kappa$ 1/A30; V $\kappa$ 4/B3; V $\kappa$ 3/A27; V $\kappa$ 3/L2; V $\kappa$ 1/A30; V $\kappa$ 3/L2,L16; and V $\kappa$ 1/A30.

23. The isolated human antibody or antigen-binding portion thereof according to claim 21, wherein said kappa light chain comprises between one and fifteen amino acid changes from a kappa light chain encoded by the germline sequence of a human gene selected from the group consisting of: V $\kappa$ 2/A19/A3; V $\kappa$ 1/A30; V $\kappa$ 4/B3; V $\kappa$ 3/A27; V $\kappa$ 3/L2; V $\kappa$ 1/A30; V $\kappa$ 3/L2,L16; and V $\kappa$ 1/A30.

24. The isolated human antibody or antigen-binding portion thereof according to claim 21, wherein said kappa light chain comprises no more than six amino acid changes from a kappa light chain encoded by the germline sequence of a human gene selected from the group consisting of: V $\kappa$ 2/A19/A3; V $\kappa$ 1/A30; V $\kappa$ 4/B3; V $\kappa$ 3/A27; V $\kappa$ 3/L2; V $\kappa$ 1/A30; V $\kappa$ 3/L2,L16; and V $\kappa$ 1/A30.

25. The isolated human antibody or antigen-binding portion thereof according to claim 24, wherein said kappa light chain comprises no more than three amino acid changes from a kappa light chain encoded by the germline sequence of a human gene selected from the group consisting of: V $\kappa$ 2/A19/A3; V $\kappa$ 1/A30; V $\kappa$ 4/B3; V $\kappa$ 3/A27; V $\kappa$ 3/L2; V $\kappa$ 1/A30; V $\kappa$ 3/L2,L16; and V $\kappa$ 1/A30.

26. The isolated human antibody or antigen-binding portion thereof according to claim 21, wherein said kappa light chain comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 22; SEQ ID NO: 23; SEQ ID NO: 24; SEQ ID NO: 25; SEQ ID NO: 26; SEQ ID NO: 27; SEQ ID NO: 28; SEQ ID NO: 29; and SEQ ID NO: 30.

27. The isolated human antibody or antigen-binding portion thereof according to claim 21, wherein said kappa light chain comprises at least one of the FR1, CDR1, FR2, CDR2, FR3, CDR3 and J regions sequence from an amino acid sequence selected from the group consisting of: SEQ ID NO: 22; SEQ ID NO: 23; SEQ ID NO: 24; SEQ ID NO: 25; SEQ ID NO: 26; SEQ ID NO: 27; SEQ ID NO: 28; SEQ ID NO: 29 and SEQ ID NO: 30.

28. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, comprising a lambda light chain.

29. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, comprising a heavy chain composed of variable (V), diversity (D), and Joining (J) regions and composed of framework sequences thereof.

30. The isolated human antibody or antigen-binding portion thereof according to claim 29, wherein said variable region of said heavy chain is encoded by a human gene selected from the group consisting of: V<sub>H</sub>3/V4-04; V<sub>H</sub>3/V4-59; V<sub>H</sub>3/V3-33; V<sub>H</sub>3/V3-15; V<sub>H</sub>6/V6-01; and V<sub>H</sub>5/V5-51.

31. The isolated human antibody or antigen-binding portion thereof according to claim 29, wherein said diversity region of said heavy chain is encoded by a human gene selected from the group consisting of: D3-10; D1-26; D3-22; D6-13; and D6-19.

32. The isolated human antibody or antigen-binding portion thereof according to claim 29, wherein said joining region of said heavy chain is encoded by a human gene selected from the group consisting of: J<sub>H</sub>3, J<sub>H</sub>4 and J<sub>H</sub>6.

33. The isolated human antibody or antigen-binding portion thereof according to claim 29, wherein said variable region comprises between one and fifteen amino acid changes from a variable region encoded by the germline sequence of a human gene selected from the group consisting of: V<sub>H</sub>3/V4-04; V<sub>H</sub>3/V4-59; V<sub>H</sub>3/V3-33; V<sub>H</sub>3/V3-15; V<sub>H</sub>6/V6-01; and V<sub>H</sub>5/V5-51.

34. The isolated human antibody or antigen-binding portion thereof according to claim 29, wherein said heavy chain comprises no more than six amino acid changes from a variable region encoded by the germline sequence of a human gene selected from the group consisting of: V<sub>H</sub>3/V4-04; V<sub>H</sub>3/V4-59; V<sub>H</sub>3/V3-33; V<sub>H</sub>3/V3-15; V<sub>H</sub>6/V6-01; and V<sub>H</sub>5/V5-51.

35. The isolated human antibody or antigen-binding portion thereof according to claim 29, wherein said heavy chain comprises no more than three amino acid changes from a variable region encoded by the germline sequence of a human gene selected from the group consisting of: V<sub>H</sub>3/V4-04; V<sub>H</sub>3/V4-59; V<sub>H</sub>3/V3-33; V<sub>H</sub>3/V3-15; V<sub>H</sub>6/V6-01; and V<sub>H</sub>5/V5-51.

36. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said heavy chain comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 13; SEQ ID NO: 14; SEQ ID NO: 15; SEQ ID NO: 16; SEQ ID NO: 17; SEQ ID NO: 18; SEQ ID NO: 19; SEQ ID NO: 20; and SEQ ID NO: 21.
37. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2 wherein said heavy chain comprises at least one of the FR1, CDR1, FR2, CDR2, FR3, CDR3 and J regions sequence from an amino acid sequence selected from the group consisting of: SEQ ID NO: 13; SEQ ID NO: 14; SEQ ID NO: 15; SEQ ID NO: 16; SEQ ID NO: 17; SEQ ID NO: 18; SEQ ID NO: 19; SEQ ID NO: 20; and SEQ ID NO: 21.
38. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2 comprising an antigen binding domain chosen from the list consisting of an Fab fragment, an F(ab')<sub>2</sub> fragment and an Fv fragment.
39. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody is a single chain antibody.
40. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody is a chimeric antibody.
41. The chimeric antibody according to claim 40, comprising framework regions and CDR regions from different human antibodies.
42. The chimeric antibody according to claim 40, wherein the chimeric antibody is bispecific.
43. The chimeric antibody according to claim 42, wherein the chimeric antibody is bispecific for *Pseudomonas aeruginosa* LPS and a label selected from the list consisting of a radiolabeled molecule, an enzymatic label, a fluorescent label, a toxin,

a magnetic agent, a second antibody, an affinity label, an epitope tag, an antibiotic, a complement protein and a cytokine.

44. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody or portion thereof is derivatized.

45. The isolated human antibody or antigen-binding portion thereof according to claim 44, wherein said antibody or portion thereof is derivatized with polyethylene glycol, at least one methyl or ethyl group or at least one carbohydrate moiety.

46. A pharmaceutical composition comprising the antibody or antigen-binding portion thereof according to claim 1 or claim 2 and a pharmaceutically acceptable carrier.

47. A kit comprising the antibody or antigen-binding portion thereof according to claim 1 or claim 2, a pharmaceutically acceptable carrier therefor, and a container.

48. The kit according to claim 47, further comprising instructions for use.

49. A method for treating or preventing *Pseudomonas aeruginosa* infection, comprising the step of administering an isolated human antibody according to claim 1 to a patient at risk of being infected with, or currently infected with, *Pseudomonas aeruginosa*.

50. The method according to claim 49 wherein said human antibody is a monoclonal antibody.

51. The method according to claim 49, wherein said administering is performed via an injection, transmucosal, oral, inhalation, ocular, rectal, long acting implantation, liposomes, emulsion, cream, topical or sustained release means.

52. The method according to claim 49, wherein said antibody is a fusion with a second protein.
53. The method according to claim 49, wherein said antibody is labeled with a radiolabel, a toxin, a complement protein, a cytokine or an antibiotic.
54. The method according to claim 52, wherein said second protein is chosen from the list consisting of a toxic peptide moiety, a complement protein, a radiolabeled protein, a cytokine or an antibiotic protein.
55. The method according to claim 49 wherein said patient is a burn patient, a surgical patient, a prosthesis recipient, a respiratory patient, a cancer patient, a cystic fibrosis patient or an immunocompromised patient.
56. The method according to claim 49, wherein said pharmaceutical composition further comprises toxins, complement proteins, radiolabeled proteins, cytokines, antibiotics, or any combination thereof.
57. An isolated cell line that produces the antibody according to claim 1 or claim 2.
58. The cell line according to claim 57 wherein said cell line is a hybridoma.
59. A method of producing an isolated human antibody or antigen-binding portion thereof that specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02), comprising:
- a) culturing a non-human cell capable of producing said antibody under conditions in which the antibody is produced;
  - b) isolating said antibody from said cell culture.
60. The method according to claim 59, wherein said cell is a hybridoma.



61. The method according to claim 59, wherein said cell is transformed with isolated nucleic acid molecules encoding said human antibody or antigen-binding portion thereof and said cell is chosen from the list consisting of a bacterial cell, a yeast cell, an insect cell, an amphibian cell and a mammalian cell.

62. The method according to claim 61, wherein said mammalian cell is selected from the list consisting of a human cell, a mouse cell, a rat cell, a dog cell, a monkey cell, a goat cell, a pig cell, a bovine cell and a hamster cell.

63. The method according to claim 61, wherein said mammalian cell is selected from the list consisting of a HeLa cell, a NIH 3T3 cell, a CHO cell, a BHK cell, a VERO cell, a CV-1 cell, a NS/0 cell and a COS cell.

64. A method for making an isolated human antibody or antigen-binding portion thereof that specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), IATS016 (02/05), and 170006 (02), comprising:

- a) immunizing a non-human animal having incorporated a human immunoglobulin locus therein with a *Pseudomonas aeruginosa* antigenic composition;
- b) allowing said non-human animal to mount a humoral response to said antigenic composition; and
- c) isolating said human antibody from said non-human animal.

65. A nucleic acid molecule isolated from a non-human animal that encodes a human antibody heavy chain or the antigen-binding portion thereof that specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02).

66. The isolated nucleic acid molecule according to claim 65, wherein said nucleic acid molecule is isolated from a hybridoma that produces said human antibody.

67. An isolated nucleic acid molecule, or a fragment thereof, encoding a human antibody heavy chain or antigen-binding portion thereof that specifically binds to *Pseudomonas aeruginosa* LPS comprising a nucleotide sequence encoding an amino acid sequence selected from the group consisting of: SEQ ID NO: 13; SEQ ID NO: 14; SEQ ID NO: 15; SEQ ID NO: 16; SEQ ID NO: 17; SEQ ID NO: 18; SEQ ID NO: 19; SEQ ID NO: 20; and SEQ ID NO: 21.

68. The isolated nucleic acid molecule of claim 67 wherein said fragment comprises the sequence encoding between one to three of the CDR regions of said human antibody.

69. A vector comprising the nucleic acid molecule, or fragment thereof, according to any one of claims 65-68.

70. The vector according to claim 69, wherein said vector further comprises expression control sequences operably linked to said nucleic acid.

71. A nucleic acid molecule isolated from a non-human animal that encodes a human antibody light chain or the antigen-binding portion thereof that specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02).

72. The isolated nucleic acid molecule according to claim 71, wherein said nucleic acid molecule is isolated from a hybridoma that produces said human antibody.

73. An isolated nucleic acid molecule, or a fragment thereof, encoding a human antibody light chain or antigen-binding portion thereof that specifically binds to *Pseudomonas aeruginosa* LPS comprising a nucleotide sequence encoding an amino acid sequence selected from the group consisting of: SEQ ID NO: 22; SEQ ID NO: 23; SEQ ID NO: 24; SEQ ID NO: 25; SEQ ID NO: 26; SEQ ID NO: 27; SEQ ID NO: 28; SEQ ID NO: 29; and SEQ ID NO: 30.

74. The isolated nucleic acid molecule of claim 71 wherein said fragment comprises the sequence encoding between one to three of the CDR regions of said human antibody.
75. A vector comprising the nucleic acid molecule according to any one of claims 71-74.
76. The vector according to claim 75, wherein said vector further comprises an expression control sequence operably linked to said nucleic acid.
77. An isolated host cell comprising
- a) a nucleic acid molecule that was isolated from a non-human animal and encodes a light chain or the antigen-binding portion thereof of a human antibody that specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02); or
  - b) a vector comprising said nucleic acid molecule.
78. An isolated host cell comprising:
- a) a nucleic acid molecule that was isolated from a non-human animal and encodes a heavy chain or the antigen-binding portion thereof of a human antibody that specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02); or
  - b) a vector comprising said nucleic acid molecule.
79. An isolated host cell comprising:
- a) an nucleic acid molecule that was isolated from a non-human animal and encodes a heavy chain or the antigen-binding portion thereof and an isolated nucleic acid molecule that encodes a light chain or the antigen-binding portion thereof of a human antibody that specifically binds to LPS from one of *Pseudomonas*

*aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02) or

b) a vector or vectors comprising said nucleic acid molecules.

80. The isolated host cell of any one of claims 77-79 wherein said cells are chosen from the list consisting of hybridoma cells, bacterial cells, yeast cells, insect cells, amphibian cells and mammalian cells.

81. The host cell according to claim 80, wherein said mammalian cell is selected from the list consisting of a human cell, a mouse cell, a rat cell, a dog cell, a monkey cell, a goat cell, a pig cell, a bovine cell and a hamster cell.

82. The method according to claim 80, wherein said mammalian cells are selected from the list consisting of HeLa cells, NIH 3T3 cells, CHO cells, BHK cells, VERO cells, CV-1 cells, NS/0 cells and COS cells.

83. A method of recombinantly producing the heavy chain or the antigen-binding portion thereof, the light chain or the antigen-binding portion thereof, or both the light chain and heavy chain or antigen-binding portions thereof, of a human antibody that was identified from a non-human animal and specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02), comprising the step of cultivating the host cell according to any one of claims 77-81 under conditions in which the nucleic acid molecules are expressed.

84. An isolated heavy chain or antigen-binding portion thereof obtained from the antibody according to claim 1 or claim 2, encoded by the nucleic acid molecule according to claim 67, or isolated from the host cell according to claim 78.

85. An isolated light chain or antigen-binding portion thereof obtained from the antibody according to claim 1 or claim 2, encoded by the nucleic acid molecule according to claim 73, or isolated from the host cell according to claim 77.

86. A non-human transgenic animal comprising the nucleic acid molecule according to claim 67, wherein said non-human transgenic animal expresses said nucleic acid molecule.

87. A non-human transgenic animal comprising the nucleic acid molecule according to claim 73, wherein said non-human transgenic animal expresses said nucleic acid molecule.

88. A non-human transgenic animal comprising an isolated nucleic acid molecule that encodes a heavy chain or the antigen-binding portion thereof and an isolated nucleic acid molecule that encodes a light chain or the antigen-binding portion thereof of a human antibody that specifically binds to LPS from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), IATS016 (02/05), and 170006 (02), wherein said animal expresses said nucleic acid molecules.

89. The non-human transgenic animal according to any one of claims 86-88, wherein said animal is selected from the list consisting of a mouse, a rat, a hamster, a cow, a sheep, a primate, a horse and a pig.

90. The non-human transgenic animal according to any one of claims 86-88, wherein a human antibody resulting from expression of said isolated nucleic acid molecules or portions thereof is expressed on the surface of cells derived from said animal's B lymphocytic cells or progeny thereof.

91. The non-human transgenic animal according to any one of claims 86-88, wherein a human antibody resulting from expression of said isolated nucleic acid

molecules or a portion thereof is secreted into the lymph, blood, milk, saliva, or ascites of said animal.

92. A fusion protein comprising the isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2 and a second polypeptide sequence.

93. The fusion protein of claim 92, wherein said second polypeptide sequence is chosen from the list consisting of an epitope tag, an affinity tag, a toxic polypeptide, an antibiotic, an enzyme, a second antibody sequence, a complement protein, and a cytokine.

94. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein the heavy chain isotype of said antibody is mu, gamma, delta, epsilon or alpha.

95. The isolated heavy chain or antigen-binding portion thereof according to claim 84 comprising between one to ten amino acid substitutions that increase the serum half-life of said antibody.

96. The isolated light chain or antigen-binding portion thereof according to claim 85 comprising between one to ten amino acid substitutions that increase the serum half-life of said antibody.

97. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein the antibody or portion thereof is produced by a process comprising the steps of:

a) immunizing a non-human animal comprising a human immunoglobulin locus with an antigen selected from the group consisting of an isolated *Pseudomonas aeruginosa* LPS preparation, a virulent *Pseudomonas aeruginosa* cell preparation, an attenuated *Pseudomonas aeruginosa* cell preparation, and a killed *Pseudomonas aeruginosa* cell preparation;

- b) allowing said non-human animal to mount an immune response to said antigen; and
- c) isolating said antibody from said non-human animal.

98. The isolated human antibody or antigen-binding portion thereof according to claim 1 or claim 2, wherein said antibody or portion thereof is isolated from an animal or cell that is free of contaminating human biomaterials.

99. The isolated human antibody or antigen-binding portion thereof according to claim 99 wherein said biomaterials are chosen from the list consisting of viruses, enzymes, hormones, cytokines, receptors, receptor ligands, immunoglobulins, complement, nuclear proteins, and cytoplasmic signaling proteins.

100. The isolated human antibody or antigen-binding portion thereof according to claim 100 wherein said viruses are Epstein-Barr virus or retroviruses.

101. A hybridoma cell line having American Type Culture Collection Deposit Designation PTA-5384, PTA-5385 or PTA-5386.

102. A monoclonal antibody produced by the hybridoma cell line according to claim 101.

103. An isolated human antibody or an antigen-binding portion thereof, that specifically binds LPS O-specific side chain from one of *Pseudomonas aeruginosa* strains Fisher Devlin (International Serogroups) It-2 (011), It-3 (02), It-4 (01), It-5 (010), It-6 (07), PA01 (05), 170003 (02), LATS016 (02/05), and 170006 (02).

104. The antibody antigen-binding portion according to claim 103, which is monoclonal.

105. The antibody or antigen-binding portion according to claim 103 or 104, having a relative binding avidity of about 1.0.

106. The antibody or antigen-binding portion according to claim 104, that specifically binds the LPS O-specific side chain of one strain and does not bind to the LPS O-specific side chain of any other of the listed strains.

107. A passive vaccine for preventing or inhibiting *Pseudomonas aeruginosa* infection comprising one or more human monoclonal antibodies or an antigen-binding portion thereof, selected from the group consisting of the antibody or portion according to claim 1 or 102.

108. The passive vaccine according to claim 107 comprising two or more human monoclonal antibodies or an antigen-binding portion thereof, wherein said human monoclonal antibodies or portions specifically bind different strains of *Pseudomonas aeruginosa*.

109. A method for detecting the presence of *Pseudomonas aeruginosa* in a biological sample comprising the steps of contacting said sample with an antibody or antigen-binding portion thereof according to any one of claims 1 or 102.